

**REMARKS**

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 15 and 16 were cancelled. Claims 1-6, 9, 12, 21 and 26-27 are currently being amended.

This amendment changes and deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1-14 and 21-27 are now pending in this application.

**Double Patenting**

Claims 1-16 and 21-27 were provisionally rejected under the judicially created doctrine of non-statutory obvious type double patenting as being unpatentable over copending Application No. 10/736600, copending Application No. 10/736753 and U.S. Patent No. 7,212,487. An appropriate terminal disclaimer together with the requisite fee will be submitted when and if copending Applications 10/736600 and 10/736753 issue as patents. Further, deferral of a response to this rejection is requested until patentable subject matter has been indicated by the PTO, at which time a terminal disclaimer will be filed (or arguments made as to why this rejection is incorrect).

**Claim Objections**

Claims 5 and 26 were objected to for informalities. In response, independent claims 1 and 26 have been amended to recite a sensor system. Accordingly, Applicants respectfully request that the rejection be withdrawn.

**Claim Rejections under 35 U.S.C. § 112**

Claims 26-27 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement and second paragraph as failing to set forth the subject matter which applicant regards as their invention. Specifically, the Office Action states that the claimed “electric field generating means” is not disclosed in the specification.

Applicants respectfully disagree. The claimed electric field generation means is disclosed, for example, in Figs. 2, 4 and at least paragraphs 17 and 20 of the specification. For example, Figs. 2 and 4 show a voltage is applied across the sensor circuit and the substrate 102 and the sensor circuit and the cantilever 106. Further, paragraph 17 states that the substrate 102 and the cantilever 106 generate an electric field. Accordingly, the means disclosed in Figs. 2 and 4 consisting of the substrate 102, the cantilever 106 and the voltages being applied across the sensor circuit and the substrate 102 and cantilever 106 comprise the claimed electric field generation means. Accordingly, Applicants respectfully request that the rejection be withdrawn and claims 26 and 27 be allowed.

**Claim Rejections under 35 U.S.C. § 102**

Claims 1-3, 9-10, 12-14 and 26-27 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,477,132 (“Azuma”). Claims 1, 2, 6 and 9 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 7,054,257 (“Binning”). In response, without agreeing or acquiescing to the rejection, Applicant amends independent claims 1, 6, 9, 12, 21 and 26 to further define the invention. Further, Applicant respectfully traverses the rejection for the reasons set forth below.

Applicant relies on M.P.E.P. § 2131, entitled “Anticipation – Application of 35 U.S.C. § 102(a), (b) and (e)” which states, “a claim is anticipated only if each and every element set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” Applicant respectfully submits that Azuma and/or Binning do not describe each and every element of the claims.

Independent claims 1, 6, 9, 12, 21 and 26 are directed to a sensing system, a read mechanism, a method of using a sensing device and method of making a sensing device

wherein in addition to other elements “the medium is supported on a substrate in which the device / FET having a source, drain and channel is formed, and wherein the medium is configured so that the superficial data indicative topographical feature is located in operative proximity to the channel of the device / FET.”

Accordingly, the claims clearly indicate that the present invention is directed to a sensor arrangement using a FET which responds to changes in distance. The topography of the claimed medium causes the distance between the cantilever and medium to vary. The distance variation allows a FET formed on the end of the cantilever to respond to changes in an electric field and modulate a signal in accordance with the amount of clearance between the medium and the cantilever. Further, since the medium is electrically non-conductive the modulation of current passing through the FET is due solely to the changes in the electrical field which are produced between the cantilever and the substrate.

In contrast, Azuma and/or Binning do not disclose, teach or suggest each and every limitation of independent claims 1, 6, 9, 12, 21 and 26. Specifically, Azuma does not disclose a cantilever disposed with a medium “wherein the medium is supported on a substrate in which the device having a source, drain and channel is formed, and wherein the medium is configured so that a superficial data indicative topographical feature is located in operative proximity to the channel of the device.” Instead, Azuma is directed to a probe and information/recording apparatus that uses a thin film adapted to record information as a local change of electric conductivity. (See Col. 6, lines 45-47; FIG. 1.) The medium disclosed in Azuma is electrically conductive. As shown in FIG. 1, reference symbol 206 denotes a low conductivity portion and reference symbol 207 denotes a high conductivity portion. (See Col. 6, lines 49-51.) The probe of Azuma detects recorded information based on the conductivity of the thin film, not its topography. (See Col. 7, lines 24-33.)

Binning is directed to AFM-data storage. Specifically, Binning discloses read/write components where read sensing is performed by a proximity sensing arrangement. See Abstract. However, Binning fails to disclose a sensing system, a read mechanism, a method of using a sensing device and method of making a sensing device wherein in addition to other elements “the medium is supported on a substrate in which the device / FET having a source,

drain and channel is formed, and wherein the medium is configured so that the superficial data indicative topographical feature is located in operative proximity to the channel of the device / FET” as claimed in independent claims 1, 6, 9, 12, 21 and 26.

M.P.E.P. § 2131 states that “[t]he identical invention must be shown in as complete detail as is contained in the claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989). Here, both Azuma and Binning fail to disclose “wherein the medium is supported on a substrate in which the device having a source, drain and channel is formed, and wherein the medium is configured so that a superficial data indicative topographical feature is located in operative proximity to the channel of the device” in any detail.

Accordingly, Azuma and/or Binning do not disclose each and every limitation of independent claims 1, 6, 9, 12, 21 and 26. Thus, Applicants respectfully request that the rejection be withdrawn and independent claims 1, 6, 9, 12, 21 and 26 be allowed. In addition, claims 2-5, 7, 10-11, 13, 14, 22-25 and 27 depend from one of claims 1, 6, 9, 12, 21 or 26 and are therefore allowable for the reasons set forth above without regard to further patentable limitations recited therein. Further, Azuma does not disclose “a surface of the medium having a topography that causes the distance between the cantilever and the medium to vary” as claimed in claim 2, nor does Azuma disclose a sensing device “wherein the medium is electrically non-conductive and is supported on a substrate which is electrically conductive, and wherein the substrate is circuited with the FET so that variations in the electrical field which result from a change in distance between the medium and the cantilever” as claimed in claim 5. For these additional reasons, Applicants respectfully request that the rejection be withdrawn and claims 2-5, 7, 10-11, 13, 14, 22-25 and 27 be allowed.

If this rejection of the claims is maintained, the examiner is respectfully requested to point out where the above-mentioned features are disclosed in Azuma and/or Binning.

### **Claim Rejections under 35 U.S.C. § 103**

Claims 4 and 11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Azuma and further in view of U.S. Patent No. 4,538,165 (“Chang”). Claim 5 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Azuma and further in view of Binning

and 6,665,258 ("Dietzel"). Claims 3-5, 7, 8, 10 and 11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Azuma and further in view of Binning. Claims 12-13 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Binning further considered with Azuma.

As stated above, Azuma and/or Binning does not disclose, teach or suggest each and every limitation of independent claims 1, 6, 9, 12, 21 and 26. Claims 3-5, 7, 8 and 10-13 depend from one of claims 1, 6, 9 or 12 and are therefore allowable for the reasons set forth above without regard to further patentable limitations recited therein. Further, Chang and/or Dietzel fail to cure the deficiencies of Azuma and/or Binning. Accordingly, Applicant respectfully request that the rejection be withdrawn and claims 3-5, 7, 8 and 10-13 be allowed.

### **Conclusion**

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.



The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

*At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 C.F.R. § 1.25. Additionally, charge any fees to Deposit Account 08-2025 under 37 C.F.R. § 1.16 through § 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees.*

Respectfully submitted,

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